

REMARKS

The Office Action of September 28, 2009, has been carefully studied. Claims 15-22 currently appear in this application. These claims define novel and unobvious subject matter under Sections 102 and 103 of 35 U.S.C., and therefore should be allowed. Applicant respectfully requests favorable reconsideration and formal allowance of the claims.

Claim Amendments

Claim 15, the independent claim, has been amended to recite that the alcoholic reaction media forms a single phase with ethylene glycol, which single phase is not miscible with an aqueous solution of a terephthalic acid salt. Support for this amendment can be found in the specification as filed at page 6, line 26 to page 7, line 2, as well as in Examples 1, 4, 5 and 7-9. In these examples, despite the fact that octanol, pentanol, pentanol/ethanol mixtures, ethanol and propanol are used, which are slightly water soluble to completely water soluble, two separate liquid phases are formed once water is added to the reaction mixture.

Art Rejections

Claims 15-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yazaki et al., US 6,580,005 in view of Mays, US 3,801,273.

This rejection is respectfully traversed.

The PET saponification reaction with alkali metal hydroxide is conventional. However, the applicant's contribution to the art is the combination of the PET saponification as well as the particular reaction media used, which allows for a better separation of the terephthalic acid salt from the ethylene glycol and which is neither taught nor suggested in the cited art.

By using an alcoholic media that forms a single phase with ethylene glycol, which single phase is not miscible with an aqueous solution of a terephthalic acid salt, improved separation of the terephthalic acid salt and recovery of ethylene glycol is possible.

As can be seen from the following table, the Yazaki process involves a solid-liquid separation of ethylene glycol from the terephthalic acid salt. In contrast thereto, the presently claimed process is able to perform a liquid-liquid separation by adding water to dissolve the terephthalic acid salt, which aqueous solution is not miscible with the organic phase. It is the use of an alcoholic media that forms a single phase with ethylene glycol, which single phase is not miscible with an aqueous terephthalic acid salt solution, that makes this liquid-liquid separation possible.

Subject Patent Application	Yazaki
1 st step: Saponification reaction , obtaining the TPA salt and EG as reaction products; EG is incorporated to the alcoholic reaction media.	1 st step: Decomposition reaction , obtaining TPA salt and EG as reaction products
2 nd step: Liquid-liquid separation , consisting in cooling the reaction mixture, adding water to dissolve the TPA salt and a liquid-liquid separation to separate the aqueous phase containing the TPA salt from the organic phase.	2 nd step: Solid-liquid separation , consisting in separating EG from the decomposition reaction slurry of TPA salt and EG; and later the solid TPA salt is dissolved in water to remove insoluble impurities .
3 rd step: TPA formation , by reacting the TPA salt with a stronger acid than TPA to form and precipitate the latter crystals	3 rd step: TPA formation as crystals by neutralization of TPA salt with acid.
4 th step: Solid-liquid separation , to separate the crystals formed in the previous step from the media where they were crystallized.	4 th step: Solid-liquid separation of the resulting slurry of TPA crystals, so that said crystals can be obtained and washed.
5 th step: EG recovery , which consists in separating and recovering EG and alcoholic reaction media from the reaction media separated in 2 nd step.	5 th step: Drying and pulverization of the washed TPA crystals.

It is clear from the above table, and from examples 1, 4, 5 and 7-9 of the present specification, that the particular alcohol used for the alcoholic media, must be one that forms a single phase with ethylene glycol, which single phase is not miscible with an aqueous solution of a terephthalic acid salt. It is the forming of this single immiscible organic phase that makes the liquid-liquid separation possible.

Yazaki uses a solid-liquid separation to separate a slurry of terephthalic acid salt from ethylene glycol, and the solid terephthalic acid salt is dissolved in water to remove water-insoluble impurities. Mays adds nothing to Yazaki, because, even though Mays discloses that in a


saponification of PET with metal hydroxide, mono- or dialcohols can be used interchangeably, there is nothing in Mays that even suggests that the alcohols should form a liquid phase with ethylene glycol that is separate and immiscible from an aqueous solution of a terephthalic acid salt.

None of the patents cited teaches or suggests using an alcoholic media for the initial saponification process that forms a single phase with ethylene glycol, which single phase is not miscible with an aqueous terephthalic acid salt solution. None of the cited patents teaches or suggests a process for separating a terephthalic acid salt from ethylene glycol in a liquid-liquid separation process.

In view of the above, it is respectfully submitted that the claims are now in condition for allowance, and favorable action thereon is earnestly solicited.

Respectfully submitted,

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